

Art Unit: 1700

CLM PTO

11/02/04

Claims 1-12 cancel.

13. A doctor unit in a paper machine includes a blade carrier having a blade holder, and a doctor blade fittable on the blade holder for doctoring a roll or similar moving surface, the doctor unit is characterized in that one of the blade holder and doctor blade include at least one sensor installed inside the construction or on its surface, and said sensor is arranged to measure one of the wear and stress in the said one of the blade holder and doctor blade.

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14. A doctor unit according to Claim 13, characterized in that at least one optical fiber is adapted as a sensor and installed inside the said one of the blade holder and doctor blade.

15. A doctor unit according to Claim 13, characterized in that on the surface of the said one of the blade holder and doctor blade there is included at least one of a pressure-sensitive sensor and stress-strain sensor arranged to measure the blade load.

16. A doctor unit according to Claim 14, characterized in that the doctor unit includes light transmitting devices, at one end of the doctor unit, connected to the optical fibers, and light receiving devices at the other end.

17. A doctor unit according to Claim 14, characterized in that the blade holder includes a top plate, in which there are one or more optical fibers arranged in essentially the transverse direction of the doctor unit and extending from one end of the top plate to the other.

18. A doctor unit according to Claim 14, characterized in that the optical fibers installed inside the doctor blade and extending over the entire length of the doctor blade are arranged essentially transversely to the doctor unit 0.5 - 10 mm from each other.

19. A doctor unit according to Claim 17, characterized in that there are 1 - 15 optical fibers in one of the said blade holder and the doctor blade.

20. A doctor unit according to Claim 15, characterized in that sensors are arranged essentially over the entire width of the doctor unit in the area of contact between the top plate belonging to the blade holder and the doctor blade.

21. A doctor unit according to Claim 15, characterized in that the pressure-sensitive sensor is one of a PVDF membrane sensor and an EMF sensor operating on the piezoelectric principle.

22. A doctor unit according to Claim 21, characterized in that 1 - 10 PVDF sensors are fitted over the width of the doctor unit to each meter of the width of the doctor unit.

23. A doctor unit according to Claim 14, characterized in that the optical fiber includes filaments acting as sensory organs and that the optical fiber is connected to an electrical crystal, which is arranged to send a signal when the resistance in the optical fiber changes.

24. A doctor unit according to Claim 13, characterized in that the duration of sensor measurement in the said one of the blade holder and the doctor blade is arranged between momentary and continuous duration when the sensor is connected to a selected monitoring system.